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WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE. XIII. PODOLUMA. (U)
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Wood Anatomy of the Neotropical Sapotaceae

XIII. Podoluma

Research Paper FPL 354

U. S. Department of Agriculture
Forest Service
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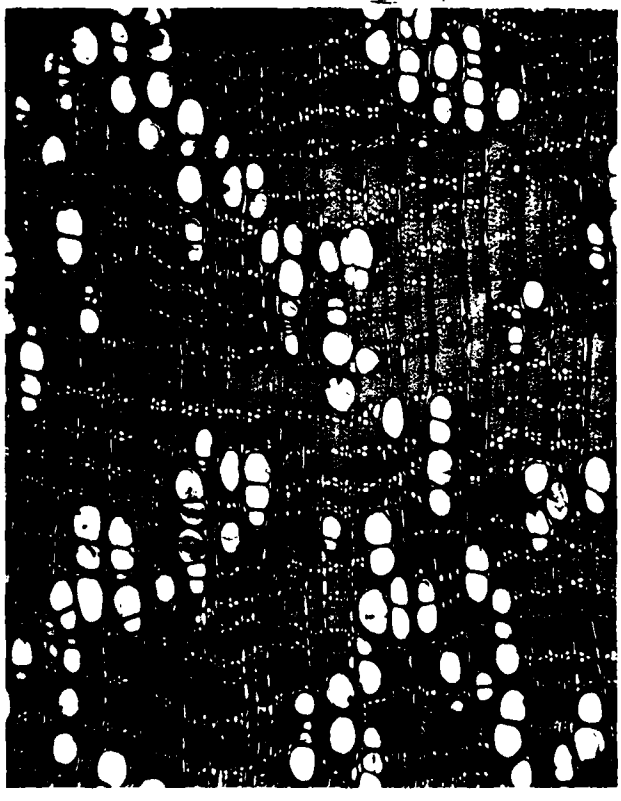

Abstract

The wood anatomy described here is based on the only available specimen of the genus and is represented by Podoluma benai Aubr. & Pellegr. (BAFOG 207) collected in French Guiana. The specimen represents mature wood from the type tree. The wood is readily differentiated from the other hard, heavy, and dark colored Sapotaceae by the presence of microcrystals in the axial parenchyma.

Preface

The Sapotaceae form an important part of the ecosystem in the neotropics; for example, limited inventories made in the Amazon Basin indicate that this family makes up about 25 percent of the standing timber volume there. This would represent an astronomical volume of timber but at present only a very small fraction is being utilized. Obviously, better information would help utilization--expecially if that information can result in clear identification of species.

The Sapotaceae represent a well-marked and natural family but the homogeneous nature of their floral characters makes generic identification extremely difficult. This in turn is responsible for the extensive synonomy. Unfortunately, species continue to be named on the basis of flowring or fruiting material alone and this continues to add to the already confused state of affairs.

This paper on Podoluma is the thirteenth in a series describing the anatomy of the secondary xylem of the neotropical Sapotaceae. The earlier papers, all by the same author and under the same general heading, include:

I. Rumelia--Research Paper FPL 325
II. Mastichodendron--Research Paper FPL 326
III. Dipholis--Research Paper FPL 327
IV. Achrouteria--Research Paper FPL 328
V. Calocarpum--Research Paper FPL 329
VI. Chloroluma--Research Paper 330
VII. Chysophyllum--Research Paper 331
VIII. Diploon--Research Paper 349
IX. Pseudoxythece--Research Paper 350
X. Micropholis--Research Paper 351
XI. Pradosia--Research Paper 352
XII. Neoxythece--Research Paper 353

Publication in this manner will afford interested anatomists and taxonomists the time to make known their opinions and all such information is hereby solicited. At the termination of this series the data will be assembled into a single comprehensive unit.

WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE

XIII. PODOLUMA

By

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U.S. Department of Agriculture

Introduction

Podoluma is a small genus of five species rather widely distributed in South America ranging from Paraguay and Bolivia to the Guianas. The genus was originally described by Baillon in 1891 and was based on two species of the old genus Lucuma (catocladantha and pedunculariis). In 1961 Aubreville (1) made two new combinations (gardneri and inflexa) and described a new species (benai) from French Guiana. Bachni (2) regards Podoluma as a synonym of his all-inclusive genus Pouteria.

Podoluma is one of the very few neotropical Sapotaceae in which the heartwood and sapwood are sharply demarcated, a character shared with Pouteria (sensu Aubreville), Pricurella, Manilkara, and Paralabatia. It differs from the latter genera with respect to several anatomical characters and is unique among this group because of the microcrystals (crystal sand) which occur in the axial parenchyma. The wood anatomy justifies its generic status.

Description

Description based on one specimen of Podoluma benai Aubr. & Pellegr., BAFOG 207 collected in French Guiana. The wood specimen is from the type tree and exhibits 4.5 cm of sapwood and 5 cm of heartwood. The

1/ Pioneer Research Unit, Forest Products Laboratory.

2/ Maintained at Madison, Wis., in cooperation with the University of Wisconsin, Madison.

bark is 3 mm in thickness. In the Madison collection this is number 32959 and is a duplicate of Uw 5282. This is apparently the only extant wood specimen available for this genus.

General: Sapwood a drab brown which is very distinctly separated from the dark brown heartwood. Very hard and heavy; specific gravity of 1.03. Growth rings indistinct or lacking.

Anatomical:

Pores and pore multiples clustered and in echelon arrangement (fig. 1). Pores solitary and in radial multiples of 2-4(5). Maximum pore diameter, 181 µm.

Vessel member length averages 800 µm. Inter-vessel pit diameter 6-8 µm. Perforations simple. Tyloses thick-walled to sclerotic in the heartwood.

Axial parenchyma banded, the individual bands 1-2(3) seriate (fig. 2) The individual cells with or without brown contents. Silica occasional and then limited to those cells with brown contents. Microcrystals present. Some cells of the heartwood thick-walled.

Woods rays 1-2 seriate; heterocellular. Vessel-ray pitting irregular in shape and size. Ray cells commonly with brown contents although a few cells appear to be without contents. Silica present in the form of spheroidal particles up to 16 µm in diameter; generally confined to cells with brown contents.

Wood fibers very thick-walled with an average length of 1.96 mm. Vascular tracheids common. Silica content of wood 0.39 percent.

Diagnostic features: Wood hard, heavy, with dark brown heartwood. Pores clustered and in echelon arrangement. Wood rays with silica. Axial parenchyma with microcrystals, unique among the hard, heavy, dark colored woods of the Sapotaceae.

Literature Cited

1. Aubreville, A.
1961 Notes sur des Pouteriees Americaines. Adansonia 1(2):181-182.

2. Baehni, Charles.
1965. Memoires sur les Sapotacees. III. Inventaire des genres Boissiera II.52.

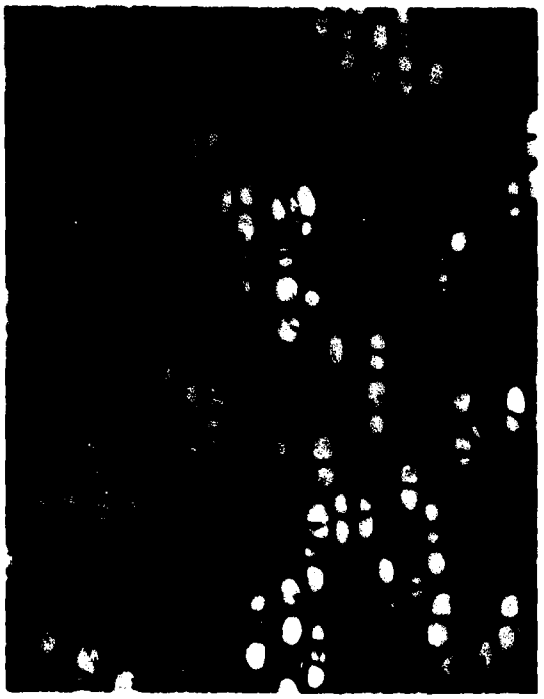

Figure 1.--Podoluma benai illustrating pore and parenchyma arrangement.

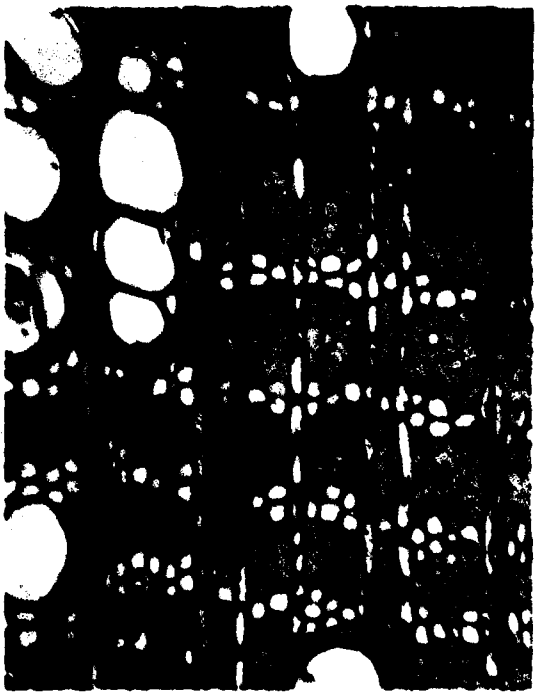

Figure 2.--Showing detail of axial parenchyma.